

REMARKS

The Applicants respectfully request reconsideration in view of the following remarks and amendments. Claims 1, 6, 9-11, 14, and 15 are amended. Accordingly, claims 1-15 are pending in the application.

I. Objections to the Drawings

The Examiner has objected to the drawings because Figures 1 and 2 should be designated by a legend indicating that these figures illustrate prior art. In response, the Applicants have amended these figures to include a legend of “(Prior Art).” Accordingly, in light of these amendments, the Applicants respectfully request withdrawal of the objection to these figures.

The Examiner has objected to Figure 3 for failing to comply with 37 CFR 1.83(a) because this figure does not illustrate each element recited in claims 1 and 10. In particular, the Examiner has asserted that the element of a “comparator” is not included and the elements of a “first accumulator” and a “second accumulator” are not clearly illustrated in this figure. In response, the Applicants have amended claims 1 and 10 to replace the “comparator” with a “second subtractor.” Further, the Applicants have amended claim 1 to include the limitations of a “second accumulator for accumulating output of the RF unit, calculating a mean value of the accumulated output and outputting the mean value as a DC offset” to distinguish the second accumulator over the “first accumulator” recited in claim 1. In light of these amendments of claims 1 and 10, the Applicants believe that an amended drawing for Figure 3 is not required at this time. Accordingly, in light of these amendments, the Applicants respectfully request withdrawal of the objection to Figure 3.

II. Objections to the Specification

The Examiner has objected to page 3, line 15, and page 7, line 23, of the Specification for informalities. In response, the Applicants have amended these sections of the Specification to replace “frequency, band” with “frequency band” and “the means values” with the “the mean values” as suggested by the Examiner. Accordingly, in light of these amendments, the Applicants respectfully request withdrawal of the objection to the Specification.

III. Objections to the Claims

Claim 6 is objected to for informalities. In response, the Applicants have amended to remove the instances of “ R_i ” and “ R_q ” in claim 6 as suggested by the Examiner. Accordingly, in light of these amendments, the Applicants respectfully request withdrawal of the objection to claim 6.

IV. Claims Rejected Under 35 U.S.C. § 112

Claims 14 stands rejected under 35 U.S.C. § 112 for not having sufficient antecedent basis for “the final three.” In response, the Applicants have amended this claim to replace “the final three” with “a final three.” Accordingly, in light of these amendments, the Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. § 112 rejection of claim 14.

V. Claims Rejected Under 35 U.S.C. § 103(a) By Shimazaki In View Of Zehavi

Claims 1, 5 and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,812,025 issued to Shimazaki (hereinafter “Shimazaki”) in view of U.S. Application Publication No. 2004/0013209 issued to Zehavi et al. (hereinafter “Zehavi”). The Examiner must show that the cited references, combined, teach or suggest each element of a claim to establish an obviousness rejection. As discussed below, the cited references do not teach or suggest each element of these claims.

In regard to claim 1, this claim has been amended to include the limitations of “a first energy calculator for calculating an energy of output of the RF unit,” “a second accumulator for accumulating output of the RF unit, calculating a mean value of the accumulated output and outputting the mean value as a DC offset,” “a second energy calculator for calculating an energy of the DC offset outputted by the second accumulator,” “a first subtractor for subtracting the energy of the DC offset of the input signal output by the second energy calculator from the energy of the input signal output by the first accumulator,” and “a second subtractor for subtracting a specific reference value established for AGC from an output of the first subtractor, and performing feedback of an output of the second subtractor for AGC to the RF unit.” The cited references fail to teach or suggest each element of the cited limitations recited in claim 1.

The portion of Shimazaki relied upon by the Examiner discloses that the I and Q baseband signals are amplified by a pair of variable gain amplifiers 11 and 12 and converted from analog to digital form by a pair of analog to digital converters and then *offset adjusted*.

Shimazaki, column 2, lines 27-40. However, the Applicants are unable to discern where the limitation of “a first energy calculator for calculating *an energy of output of the RF unit*” (emphasis added) recited in claim 1 is disclosed. Rather, the cited reference discloses that a signal strength calculator 19 calculates the combined energy of the *offset adjusted* I and Q signals. Shimazaki, column 2, lines 45 and 46. In other words, an *offset adjusted signal* is not equivalent to the “output of the RF unit” as recited in claim 1. Therefore, for at least these reasons, the cited reference does not teach or suggest the cited limitation of claim 1.

Moreover, the Examiner has admitted on pages 5 and 6 of the Office Action that the limitation of “a second energy calculator for calculating an energy of the DC offset” is not disclosed by Shimazaki. However, the Examiner asserts that Zehavi discloses the cited limitation of claim 1. In particular, the Examiner asserts that limiter 74 in Figure 3 of Zehavi discloses “a second energy calculator” as recited in claim 1. Rather, Zehavi discloses that limiter 74 *truncates the average energy value* generated by accumulator 72, but does not calculate “an energy of the DC offset outputted by the second accumulator” (emphasis added) as recited in claim 1. Zehavi, paragraph [0117]. Therefore, limiter 74 is not equivalent to “a second energy calculator” as recited in claim 1. The Applicants also note that Input I and Q are filtered by low-pass filters 68 to produce a low-pass filtered signal that is sent to accumulator 72. Zehavi, paragraph [0117]. Therefore, the low-pass filtered signal of Zehavi is not equivalent to the “input signal” recited in claim 1.

Thus, in view of the above reasons, Shimazaki and Zehavi, combined, do not teach or suggest each element of claim 1. Accordingly, the Applicants respectfully request reconsideration and withdrawal of the obviousness rejection of claim 1.

In regard to claims 5 and 10, these claims depend from claim 1 and incorporate the limitations thereof. Therefore, claims 5 and 10 are not *prima facie* obvious over the cited references for at least the aforementioned reasons related to claim 1. Accordingly, the Applicants respectfully request reconsideration and withdrawal of the obviousness rejection of claims 5 and 10.

VI. Claims Rejected Under 35 U.S.C. § 103(a) By Shimazaki In View Of Seo

Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Shimazaki in view of Zehavi in view of U.S. Application Publication No. 2002/0075946 issued Seo et al. (hereinafter “Seo”) for the reasons indicated at page 7 continuing to page 8 of the Office Action.

Claim 2 depends from claim 1 and incorporates the limitations thereof. The portion of Seo relied upon by the Examiner discloses a first multiplier 101 that separates an inputted signal through an antenna into I and Q channels. Seo, paragraph [0015]. However, the Applicants are unable to discern where the element of “a training sequence interval” recited in claim 2 is disclosed. Therefore, the Applicants respectfully request that the Examiner cite to the relevant sections of Seo that the element of “a training sequence interval” recited in claim 2 is disclosed.

Moreover, Seo does not disclose the missing elements of Shimazaki in view of Zehavi from claim 1. The Applicants are unable to discern where in Seo that the missing elements of Shimazaki and Zehavi are disclosed. Therefore, for at least the reasons mentioned above in regard to claim 1, the cited references, combined, do not teach or suggest each element of claim 2. Accordingly, the Applicants respectfully request reconsideration and withdrawal of the obviousness rejection of claim 2.

VII. Claims Rejected Under 35 U.S.C. § 103(a) By Shimazaki In View Of Zehavi In View Of Wang

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimazaki in view of Zehavi in view of Seo and further in view of U.S. Application Publication No. 2003/0152021 issued to Wang et al. (hereinafter “Wang”).

These claims depend from claims 1 and 2 and incorporate the limitations thereof. However, Wang does not disclose the missing elements of Shimazaki in view of Zehavi in further view of Seo. Instead, the portion of Wang relied upon by the Examiner discloses ADC 418, that takes 16 samples of each short symbol and 60 samples per long symbol. Wang, paragraphs [0041] and [0044]. Moreover, the Applicants are unable to discern where in Wang that the missing elements of Shimazaki, Zehavi, and Seo are disclosed. Therefore, for at least the reasons mentioned above in regard to claims 1 and 2, the cited references, combined, do not teach or suggest each element of claims 3 and 4. Accordingly, the Applicants respectfully request reconsideration and withdrawal of the obviousness rejection of claims 3 and 4.

VIII. Claims Rejected Under 35 U.S.C. § 103(a) By Shimazaki In View Of Zehavi In View Of Sugar

Claim 9 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Shimazaki in view of Zehavi in view of U.S. Patent No. 6,714,605 issued Sugar et al. (hereinafter “Sugar”).

The Examiner has asserted on pages 9 and 10 of the Office Action that the elements of claim 9 are disclosed by Sugar. Contrary to the Examiner’s assertion, Sugar discloses dB conversion block 150 *between* lowpass filter block 140 and stats logic block 170. Sugar, Figure 4 and column 5, lines 45-50. Therefore, Sugar does not disclose “a dB converter provided *between* the first subtractor and the second subtractor” (emphasis added) recited in claim 9.

Further, to rely on a reference under 35 U.S.C. § 103, it must be analogous prior art. See MPEP § 2141.01(a). The portion of Sugar cited by the Examiner, namely Figures 3 and 4, describes a device *for spectrum analysis*. Sugar, column 5, lines 35-38. For example, the dB conversion block computes the decibel value for *real-time FFT based spectrum analysis*. Sugar, column 5, lines 45-50, and column 6, lines 21-23. In contrast, claim 9 is drawn to an AGC device in an OFDM system. Sugar’s teaching of real-time FFT based spectrum analysis and claim 9 are not reasonably related that one of ordinary skill in the art would consider expertise in one to apply to the other. Hence, Sugar is non-analogous art. See e.g., Wang Laboratories, Inc. v. Toshiba Corp., 993 F.2d 858 (Fed. Cir. 1993). Therefore, in light of Sugar being non-analogous art, the obviousness rejection based on Shimazaki in view of Zehavi in further view of Sugar may not be established.

Moreover, claim 9 depends from claim 1 and incorporates the limitations thereof. However, Sugar does not disclose the missing elements of Shimazaki in view of Zehavi. The Applicants are unable to discern where in Sugar that the missing elements of Shimazaki and Zehavi are disclosed. Therefore, for at least the reasons mentioned above in regard to claim 1, the cited references, combined, do not teach or suggest each element of claim 9.

Thus, in view of the foregoing reasons, Shimazaki in view of Zehavi in further view of Sugar fail to teach or suggest each element of claim 9. Accordingly, the Applicants respectfully request reconsideration and withdrawal of the obviousness rejection of claim 9.

IX. Claims Rejected Under 35 U.S.C. § 103(a) By Shimazaki In View Of Wang

Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimazaki in view of Wang.

In regard to claim 11, this claim includes the limitation of “the AGC being performed by subtracting *an energy of the DC offset* from an energy of the input signal and using an energy of the DC offset cancelled ideal signal.” In addition, claim 11 has been amended to include the limitation of “the DC offset being a mean value of the input signal accumulated for the specified period.” Shimazaki does not disclose the cited limitations. Instead, the portion of Shimazaki relied upon by the Examiner discloses that signal strength calculator 19 calculates the energy of the *offset-adjusted* I and Q signals. However, “*an energy of the DC offset*” is not disclosed in Shimazaki. For example, Shimazaki discloses that a *fixed* offset compensation value is stored in an offset register 15, and that this *fixed value* is added to the I and Q signals. Shimazaki, column 2, lines 31-35. In other words, this fixed offset value is not related to the I and Q signals and is not equivalent to “the DC offset being a mean value of the input signal accumulated for the specified period” as recited in claim 11. Therefore, Shimazaki fails to teach or suggest each element of claim 11.

Moreover, Wang does not disclose the missing elements of Shimazaki from claim 11. The portions of Wang relied upon by the Examiner do not disclose the limitation of “the AGC being performed by subtracting an energy of the DC offset from an energy of the input signal and using an energy of the DC offset cancelled ideal signal, the DC offset being a mean value of the input signal accumulated for the specified period” as recited in claim 11. Therefore, for at least these reasons, the cited references, combined, do not teach or suggest each element of claim 11. Accordingly, the Applicants respectfully request reconsideration and withdrawal of the obviousness rejection of claim 11.

In regard to claims 12-15, these claims depend from claim 11 and incorporate the limitations thereof. Therefore, for at least the reasons mentioned in regard to claim 11, these claims are not obvious over the cited references. Accordingly, the Applicants respectfully request reconsideration and withdrawal of the obviousness rejection of claims 12-15.

X. Allowable Subject Matter

The Applicants note with appreciation that claims 7 and 8 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 7 and 8 depend from claim 1. Therefore, for at least the reasons discussed above, claim 1 is not *prima facie* obvious over the cited references. Thus, since claims 3 and 9 are

dependent from an allowable base claim, the Applicants believe claims 7 and 8 are in condition for allowance without rewriting them in independent form.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending, namely claims 1-15, patentably define the subject invention over the prior art of record, and are in condition for allowance and such action is earnestly solicited at the earliest possible date. If the Examiner believes that a telephone conference would be useful in moving the application forward to allowance, the Examiner is encouraged to contact the undersigned at (310) 207 3800.

Respectfully submitted,

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